

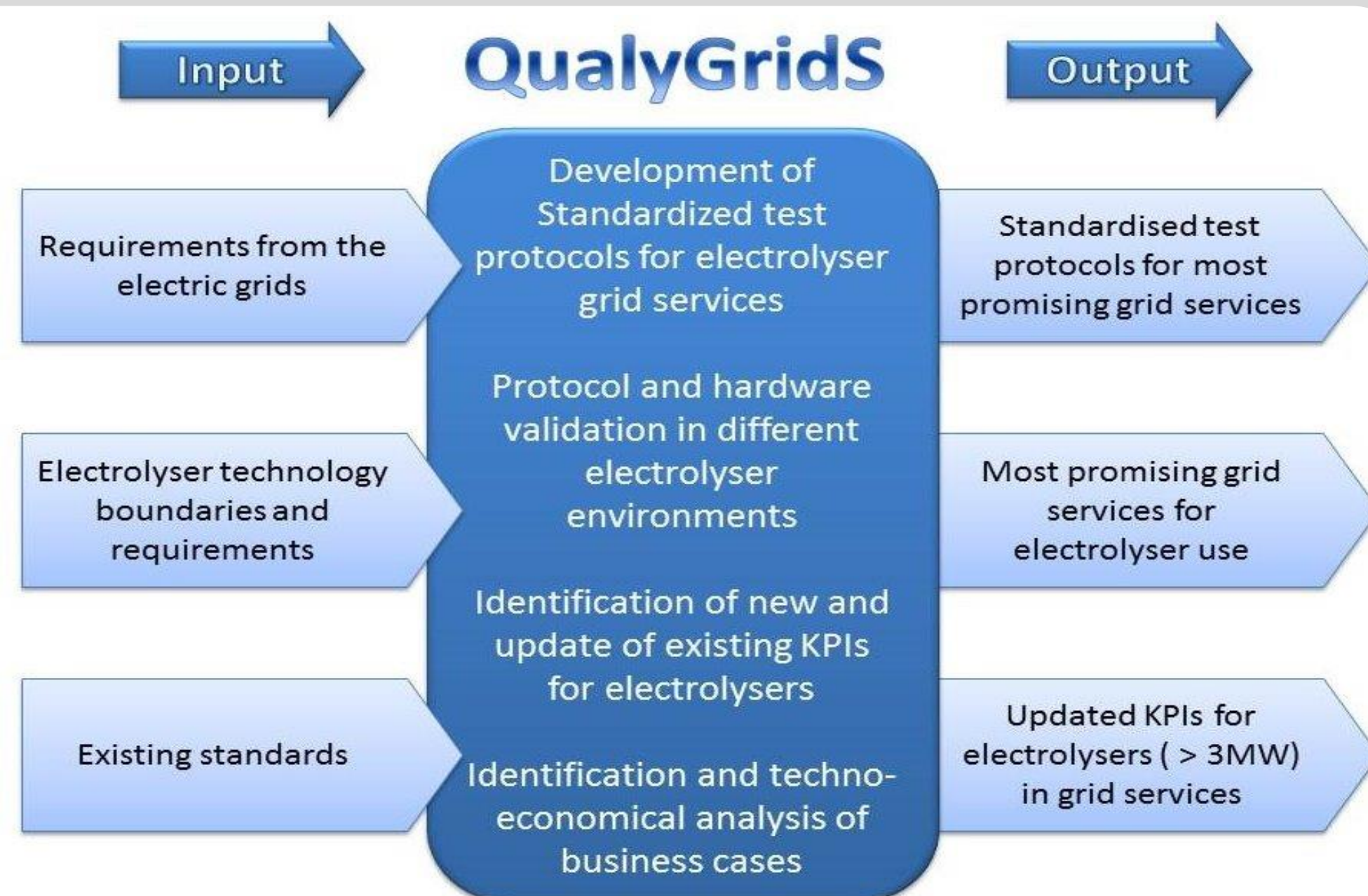
# QualyGridS - Standardized qualifying tests of electrolyzers for grid services

Regine Reissner <sup>\*(1)</sup>, Anders Sørensen <sup>(2)</sup>, Nick van Dijk <sup>(3)</sup>, Laura Abadía <sup>(4)</sup>, Cyril Bourasseau <sup>(5)</sup>, Shi You <sup>(6)</sup>, Chresten Træholt <sup>(6)</sup>, Françoise de Jong <sup>(7)</sup>, Pablo Marcuello <sup>(8)</sup>, Christoph Imboden <sup>(9)</sup>, M. Spirig <sup>(10)</sup> et al.

\*: Regine.Reissner@dlr.de, <sup>(1)</sup> DLR German Aerospace Center, <sup>(2)</sup> NEL HYDROGEN AS, <sup>(3)</sup> ITM POWER, <sup>(4)</sup> Aragon Hydrogen Foundation, <sup>(5)</sup> CEA, <sup>(6)</sup> Danmarks Tekniske Universitet (DTU), <sup>(7)</sup> Stichting Nederlands Normalisatie Instituut (NEN), <sup>(8)</sup> IHT Industrie Haute Technologie SA AG, <sup>(9)</sup> Lucerne University of Applied Sciences and Arts (HSLU), <sup>(10)</sup> European Fuel Cell Forum AG

## Motivation

The objective of the project QualyGridS is to develop testing protocols for water electrolyser systems performing electricity grid services. The methodology of the project is shown in Figure 1.



## Appeal

Collaboration of QualyGridS with other projects, manufacturers and users of electrolyser systems is highly appreciated to have a broad base of feed-back on the suggested electrolyser tests. Anybody interested should please get in contact with the coordinator of the project: Regine Reissner (regine.reissner@dlr.de)

## Methods and Results

**First step:** collecting electricity grid services and prequalification procedures

- Commercially available and new services
- Various (European) countries

Examples:

Variation of tests for similar product, variation of defining the “pass” criterion

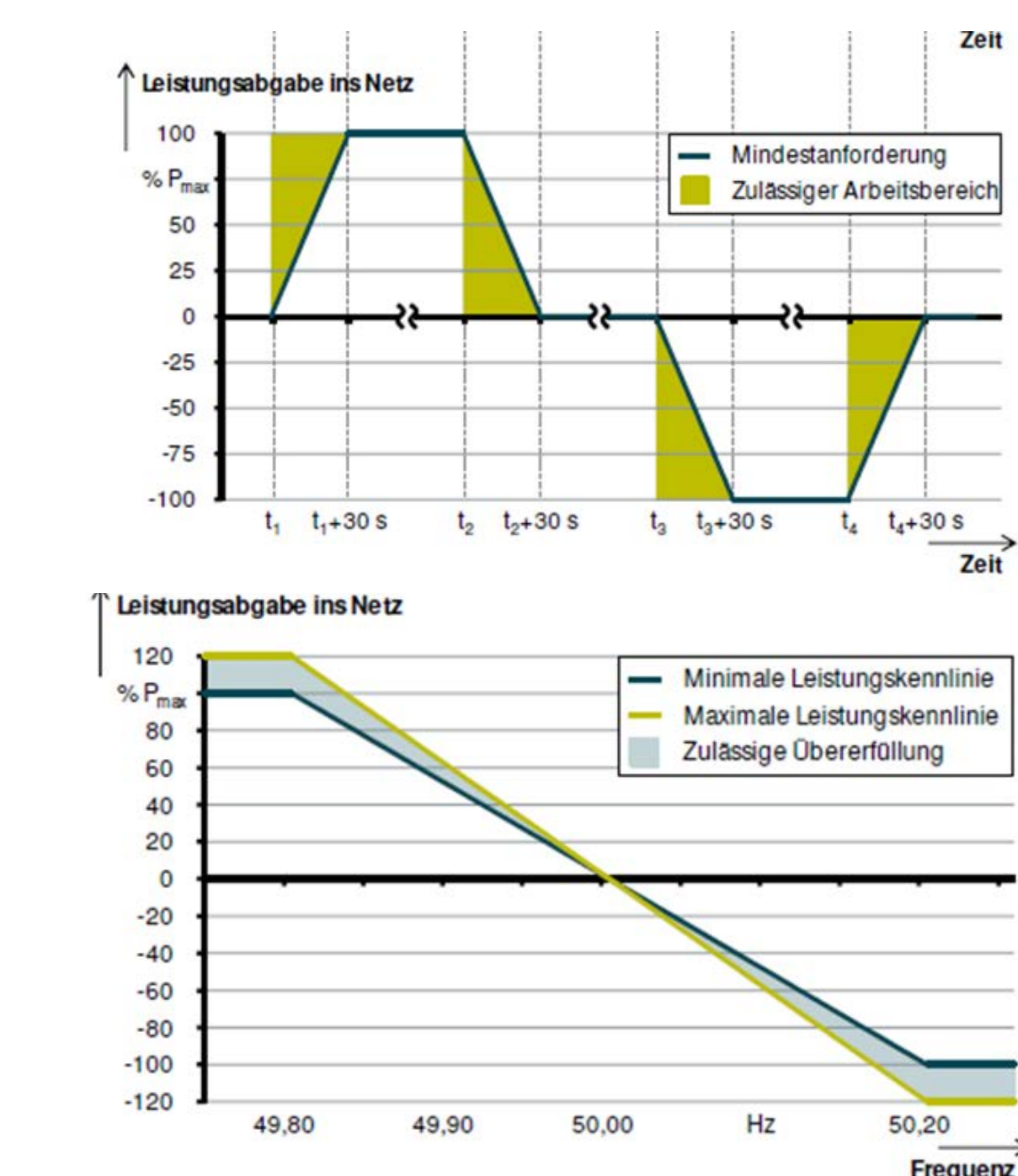
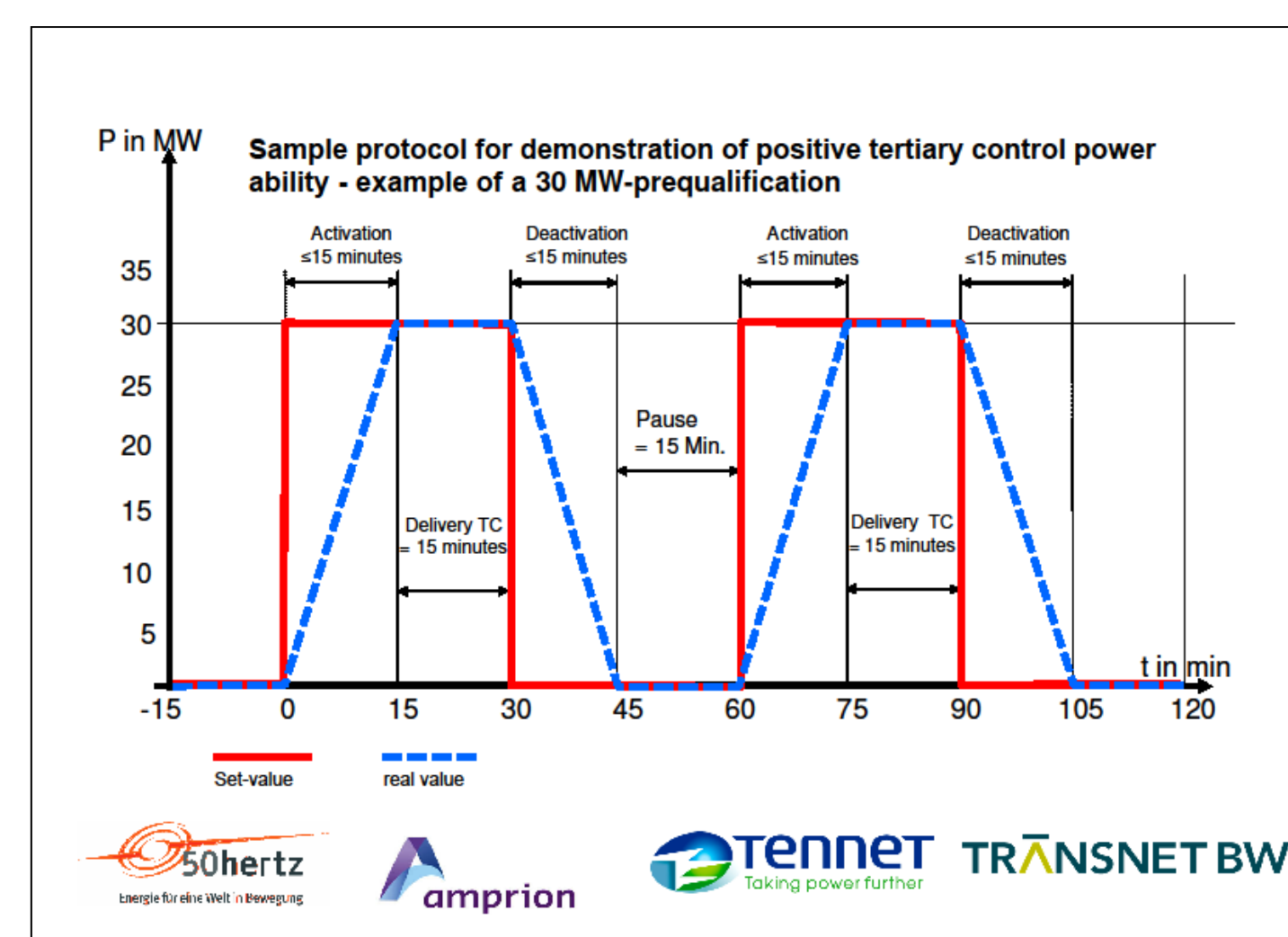
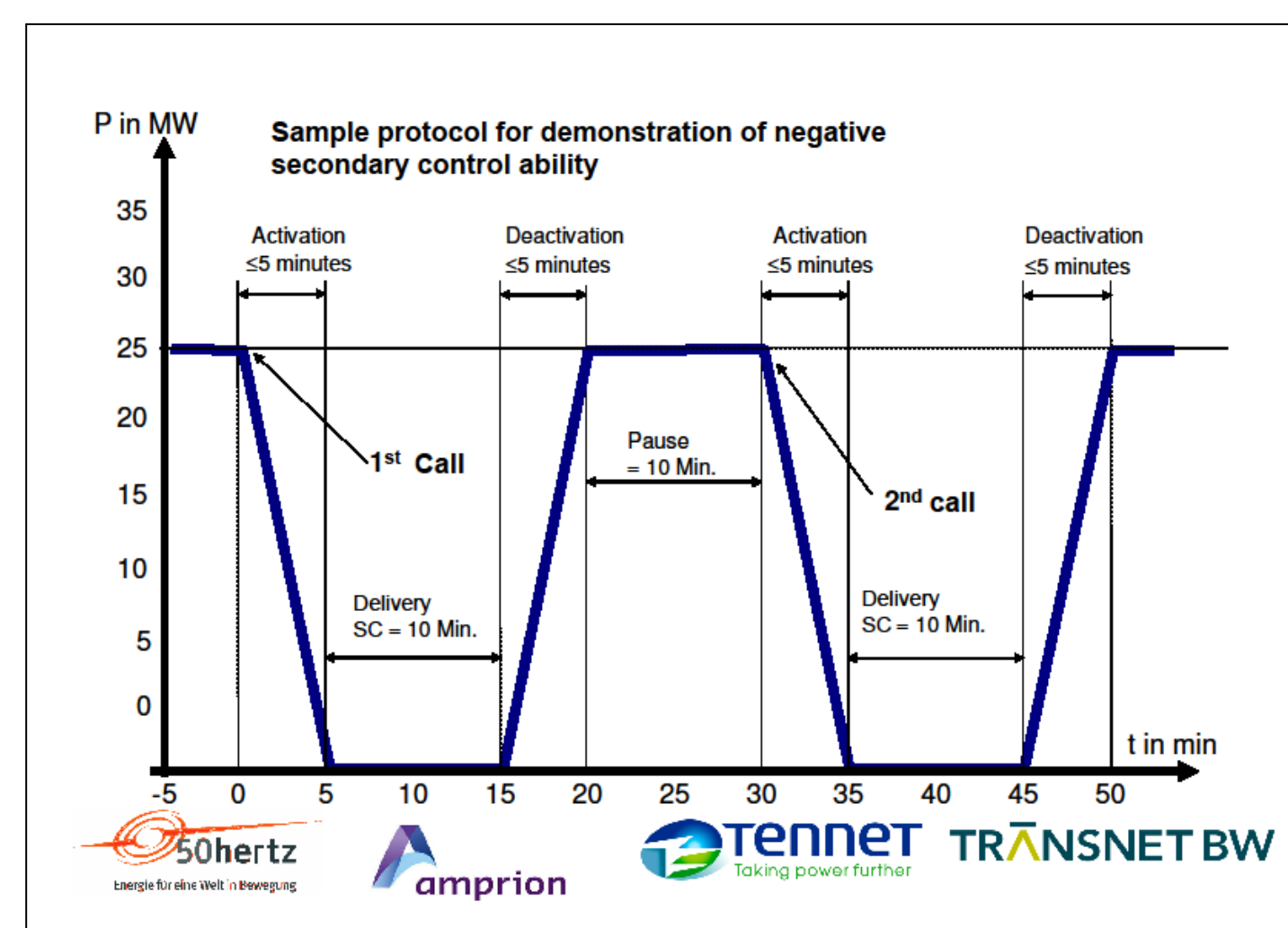
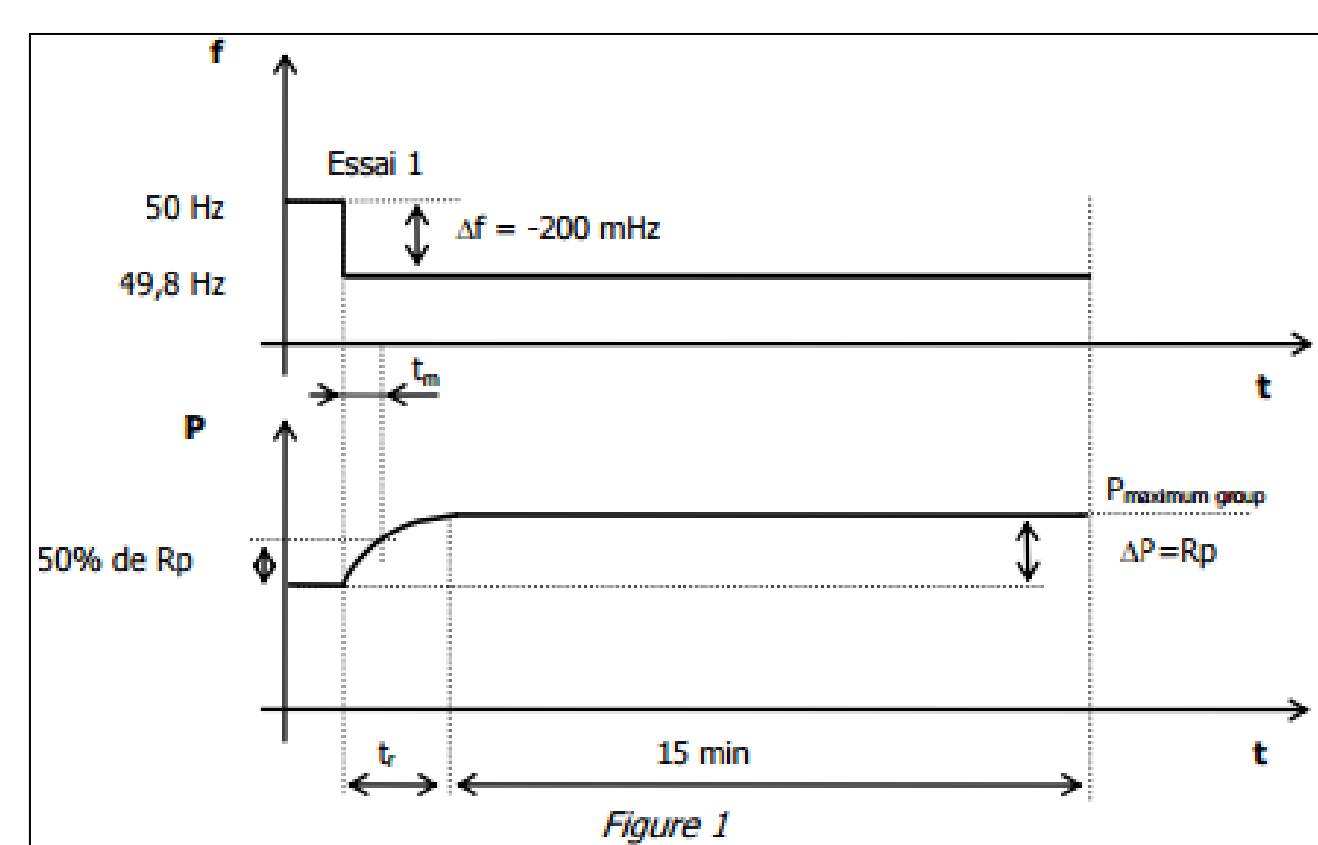
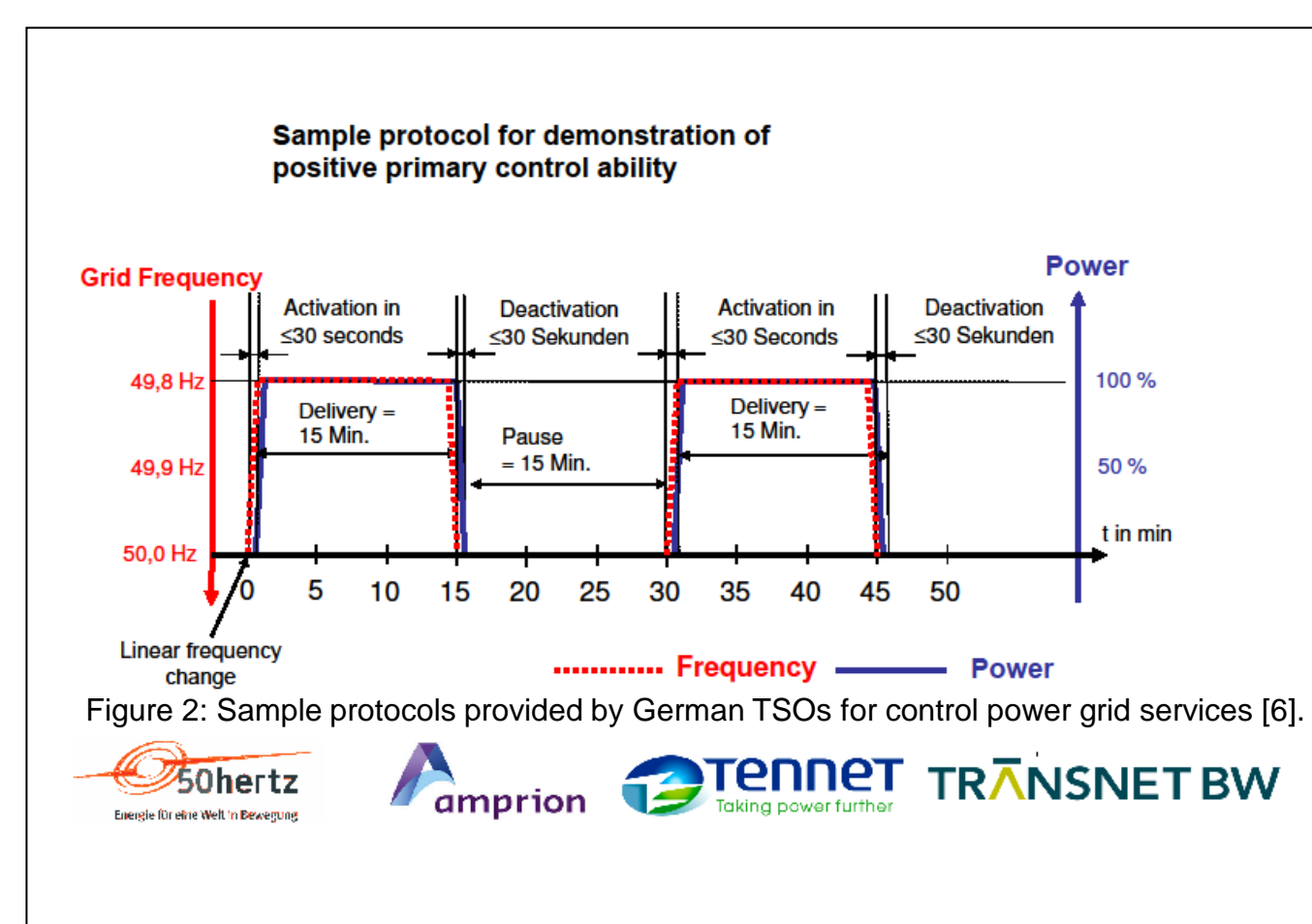
Germany Primary Control Reserve [1]

France Frequency Control Reserve [2]

Germany Secondary and Minutes Control Reserve [1]

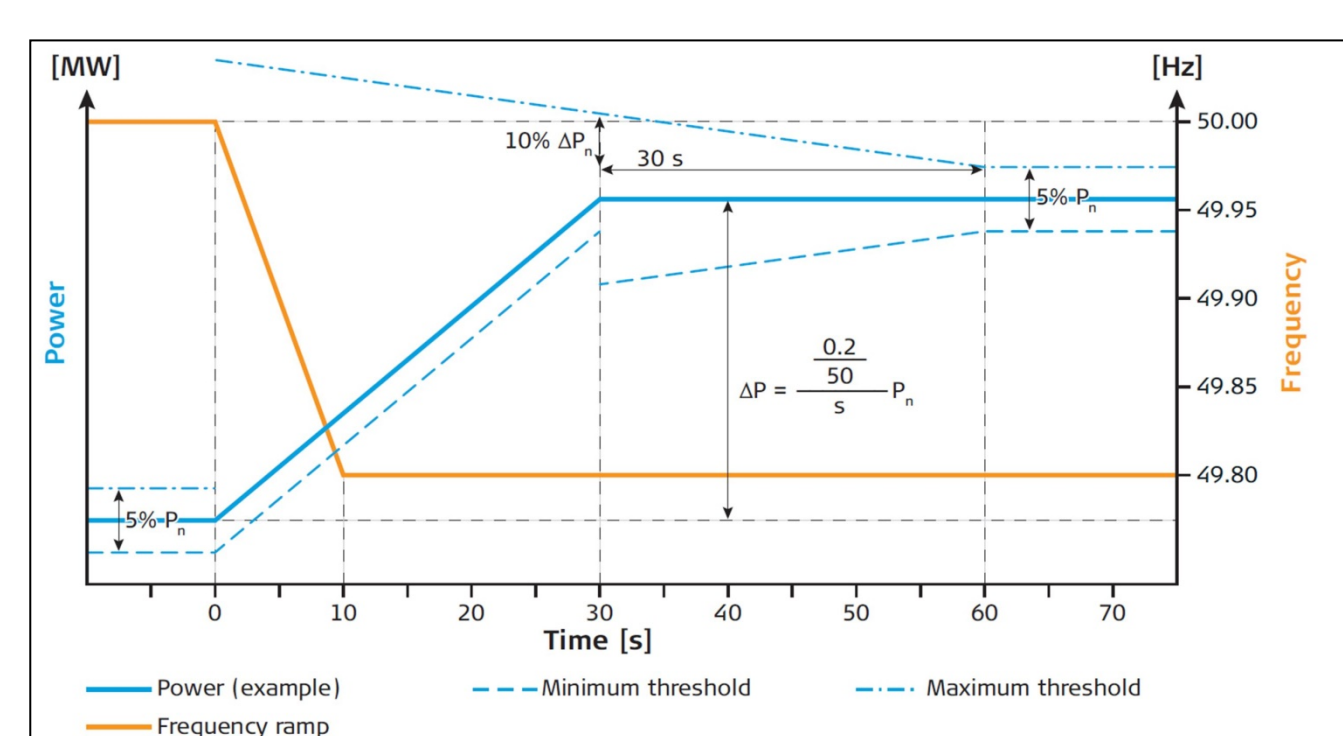
**Next steps:**

- Creating testing procedures for electrolyzers
- Verification in alkaline and PEM electrolyzers and review



- Compliance criteria:
- Non oscillating waveform response
  - Time  $t_r < 30$  sec
  - Time  $t_m < 10$  sec
  - The variation  $\Delta P = R_p$  maintained for 15 min (after  $t_r$ )
- (There are more tests)

Switzerland Primary Frequency Control [3]



## References

Further information: Project QualyGridS [www.QualyGridS.eu](http://www.QualyGridS.eu); [1] [www.regelleistung.net](http://www.regelleistung.net); [2] RTE, “Documentation Technique de Référence Chapitre 8 – Trames type”, V3, 2014, [3] Swiss Grid, “Test for secondary control capability”, 2012, Apr. V2.1. [https://www.swissgrid.ch/dam/swissgrid/experts/ancillary\\_services/prequalification/D130422\\_Test-for-secondary-control-capability\\_V2R1\\_EN.pdf](https://www.swissgrid.ch/dam/swissgrid/experts/ancillary_services/prequalification/D130422_Test-for-secondary-control-capability_V2R1_EN.pdf)

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